APEX TRIGGERS

Get Started with Apex Triggers

```
trigger AccountAddressTrigger on Account (before insert, before update) {

    for(Account account:Trigger.New){
        if(account.Match_Billing_Address__c == True){
            account.ShippingPostalCode = account.BillingPostalCode;
        }
    }

}
```

Bulk Apex Triggers

```
trigger ClosedOpportunityTrigger on Opportunity (before insert, after update) {
    List<Task> tasklist = new List<Task>();

    for(Opportunity opp: Trigger.New){
        if(opp.StageName == 'Closed Won'){
            tasklist.add(new Task(Subject = 'Follow Up Test Task', WhatId = opp.Id));
        }
    }

    if(tasklist.size()>0){
        insert tasklist;
    }

}
```

Apex Testing

```
public class VerifyDate {
public static Date CheckDates(Date date1, Date date2) {

 if(DateWithin30Days(date1,date2)) {

     return date2;
```

```
    } else {
        return SetEndOfMonthDate(date1);
    }
private static Boolean DateWithin30Days(Date date1, Date date2) {

        if( date2 < date1) { return false; }

        Date date30Days = date1.addDays(30);
    if( date2 >= date30Days ) { return false; }
    else { return true; }
  }
  private static Date SetEndOfMonthDate(Date date1) {
    Integer totalDays = Date.daysInMonth(date1.year(), date1.month());
    Date lastDay = Date.newInstance(date1.year(), date1.month(), totalDays);
    return lastDay;
  }


}
@isTest
public class TestVerifyDate
{
    static testMethod void testMethod1()
```

```
  {

      Date d = VerifyDate.CheckDates(System.today(),System.today()+1);

      Date d1 = VerifyDate.CheckDates(System.today(),System.today()+60);

  }

}
```

Test Apex Triggers

```
trigger RestrictContactByName on Contact (before insert, before update) {

 For (Contact c : Trigger.New) {
   if(c.LastName == 'INVALIDNAME') {  //invalidname is invalid
     c.AddError('The Last Name "'+c.LastName+'" is not allowed for DML');
   }

 }


}
@isTest

private class TestRestrictContactByName {



   static testMethod void  metodoTest()

   {


      List<Contact> listContact= new List<Contact>();

      Contact c1 = new Contact(FirstName='Francesco', LastName='Riggio' , email='Test@test.com');

      Contact c2 = new Contact(FirstName='Francesco1', LastName =
'INVALIDNAME',email='Test@test.com');
```

```
        listContact.add(c1);
        listContact.add(c2);

        Test.startTest();
            try
            {
                insert listContact;
            }
            catch(Exception ee)
            {
            }

        Test.stopTest();
    }

}
```

Create Test Data For Apex Tests

```
public class RandomContactFactory {
    public static List<Contact> generateRandomContacts(Integer numContactsToGenerate, String
FName) {
        List<Contact> contactList = new List<Contact>();

        for(Integer i=0;i<numContactsToGenerate;i++) {
            Contact c = new Contact(FirstName=FName + ' ' + i, LastName = 'Contact '+i);
```

```
            contactList.add(c);
            System.debug(c);
        }
        //insert contactList;
        System.debug(contactList.size());
        return contactList;
    }

}
```

Asynchronus Apex

Use Future Methods

```
public class AccountProcessor {
    @future
    public static void countContacts(List<Id> accountIds){

        List<Account> accountsToUpdate = new List<Account>();

        List<Account> account = [Select Id, Name, (Select Id from Contacts) from Account Where Id
in:accountIds];

        For(Account acc:account){
            List<Contact> contactList = acc.Contacts;
            acc.Number_Of_Contacts__c = contactList.size();
            accountsToUpdate.add(acc);

        }
        update accountsToUpdate;


    }

}
@IsTest
Private class AccountProcessorTest {
    @IsTest
    private static void testCountContacts(){
        Account newAccount = new Account(Name='Test Account');
        insert newAccount;
```

```
    Contact newContact1 = new Contact(FirstName='John',LastName='Doe',AccountId =
newAccount.Id);
    insert newContact1;

    Contact newContact2 = new Contact(FirstName='Jane',LastName='Doe',AccountId =
newAccount.Id);
    insert newContact2;

    List<Id> accountIds = new LIst<Id>();
    accountIds.add(newAccount.Id);

    Test.startTest();
    AccountProcessor.countContacts(accountIds);
    Test.stopTest();

  }
}
```

Use Batch Apex

```
public class LeadProcessor implements Database.Batchable<sObject> {

  public Database.QueryLocator start(Database.BatchableContext bc) {

    // collect the batches of records or objects to be passed to execute

     return Database.getQueryLocator([Select LeadSource From Lead ]);

  }

  public void execute(Database.BatchableContext bc, List<Lead> leads){

     // process each batch of records

       for (Lead Lead : leads) {

          lead.LeadSource = 'Dreamforce';

       }
```

```
        update leads;
    }
    public void finish(Database.BatchableContext bc){
      }

}
@isTest
public class LeadProcessorTest {

        @testSetup
    static void setup() {
        List<Lead> leads = new List<Lead>();
        for(Integer counter=0 ;counter <200;counter++){
            Lead lead = new Lead();
            lead.FirstName ='FirstName';
            lead.LastName ='LastName'+counter;
            lead.Company ='demo'+counter;
            leads.add(lead);
        }
        insert leads;
    }
```

```
    @isTest static void test() {

        Test.startTest();

        LeadProcessor leadProcessor = new LeadProcessor();

        Id batchId = Database.executeBatch(leadProcessor);

        Test.stopTest();

    }



}
```

Control Processes with Queueable Apex

```
public class AddPrimaryContact implements Queueable
{
    private Contact c;
    private String state;
    public  AddPrimaryContact(Contact c, String state)
    {
        this.c = c;
        this.state = state;
    }
    public void execute(QueueableContext context)
    {
        List<Account> ListAccount = [SELECT ID, Name ,(Select id,FirstName,LastName from contacts )
FROM ACCOUNT WHERE BillingState = :state LIMIT 200];
        List<Contact> lstContact = new List<Contact>();
        for (Account acc:ListAccount)
        {
            Contact cont = c.clone(false,false,false,false);
            cont.AccountId =  acc.id;
            lstContact.add( cont );
        }

        if(lstContact.size() >0 )
        {
            insert lstContact;
```

```
        }

    }

}
@isTest
public class AddPrimaryContactTest
{
    @isTest static void TestList()
    {
        List<Account> Teste = new List <Account>();
        for(Integer i=0;i<50;i++)
        {
            Teste.add(new Account(BillingState = 'CA', name = 'Test'+i));
        }
        for(Integer j=0;j<50;j++)
        {
            Teste.add(new Account(BillingState = 'NY', name = 'Test'+j));
        }
        insert Teste;

        Contact co = new Contact();
        co.FirstName='demo';
        co.LastName ='demo';
        insert co;
        String state = 'CA';

         AddPrimaryContact apc = new AddPrimaryContact(co, state);
         Test.startTest();
           System.enqueueJob(apc);
         Test.stopTest();


    }

}
```

Schedule Jobs Using the Apex Scheduler

```
public class DailyLeadProcessor implements Schedulable  {
   Public void execute(SchedulableContext SC){
      List<Lead> LeadObj=[SELECT Id from Lead where LeadSource=null limit 200];
       for(Lead l:LeadObj){
```

```
        l.LeadSource='Dreamforce';
        update l;
      }
   }
}
@isTest
private class DailyLeadProcessorTest {
        static testMethod void testDailyLeadProcessor() {
                String CRON_EXP = '0 0 1 * * ?';
                List<Lead> lList = new List<Lead>();
          for (Integer i = 0; i < 200; i++) {
                        lList.add(new Lead(LastName='Dreamforce'+i, Company='Test1 Inc.',
Status='Open - Not Contacted'));
                }
                insert lList;

                Test.startTest();
                String jobId = System.schedule('DailyLeadProcessor', CRON_EXP, new
DailyLeadProcessor());
}
}
```

Apex Integration Services

Apex Rest Callouts

```
public class AnimalLocator{
   public static String getAnimalNameById(Integer x){
      Http http = new Http();
      HttpRequest req = new HttpRequest();
      req.setEndpoint('https://th-apex-http-callout.herokuapp.com/animals/' + x);
      req.setMethod('GET');
      Map<String, Object> animal= new Map<String, Object>();
      HttpResponse res = http.send(req);
         if (res.getStatusCode() == 200) {
      Map<String, Object> results = (Map<String, Object>)JSON.deserializeUntyped(res.getBody());
     animal = (Map<String, Object>) results.get('animal');
      }
return (String)animal.get('name');
   }
}
@isTest
```

```
private class AnimalLocatorTest{
    @isTest static void AnimalLocatorMock1() {
        Test.setMock(HttpCalloutMock.class, new AnimalLocatorMock());
        string result = AnimalLocator.getAnimalNameById(3);
        String expectedResult = 'chicken';
        System.assertEquals(result,expectedResult );
    }
}
@isTest
global class AnimalLocatorMock implements HttpCalloutMock {
    // Implement this interface method
    global HTTPResponse respond(HTTPRequest request) {
        // Create a fake response
        HttpResponse response = new HttpResponse();
        response.setHeader('Content-Type', 'application/json');
        response.setBody('{"animals": ["majestic badger", "fluffy bunny", "scary bear", "chicken", "mighty
moose"]}');
        response.setStatusCode(200);
        return response;
    }
}
```

Apex Soap Callouts

```
public class ParkLocator {
    public static string[] country(string theCountry) {
        ParkService.ParksImplPort  parkSvc = new  ParkService.ParksImplPort();
        return parkSvc.byCountry(theCountry);
    }
}
@isTest
private class ParkLocatorTest {
    @isTest static void testCallout() {
        Test.setMock(WebServiceMock.class, new ParkServiceMock ());
        String country = 'United States';
        List<String> result = ParkLocator.country(country);
        List<String> parks = new List<String>{'Yellowstone', 'Mackinac National Park', 'Yosemite'};
         System.assertEquals(parks, result);
    }
}
@isTest
global class ParkServiceMock implements WebServiceMock {
```

```
  global void doInvoke(
          Object stub,
          Object request,
          Map<String, Object> response,
          String endpoint,
          String soapAction,
          String requestName,
          String responseNS,
          String responseName,
          String responseType) {
      // start - specify the response you want to send
      ParkService.byCountryResponse response_x = new ParkService.byCountryResponse();
      response_x.return_x = new List<String>{'Yellowstone', 'Mackinac National Park', 'Yosemite'};
      // end
      response.put('response_x', response_x);
  }
}
```

Apex Web Services

```
@RestResource(urlMapping='/Accounts/*/contacts')
global class AccountManager {
   @HttpGet
   global static Account getAccount() {
      RestRequest req = RestContext.request;
      String accId = req.requestURI.substringBetween('Accounts/', '/contacts');
      Account acc = [SELECT Id, Name, (SELECT Id, Name FROM Contacts)
                     FROM Account WHERE Id = :accId];
      return acc;
   }
}
@isTest
private class AccountManagerTest {

   private static testMethod void getAccountTest1() {
      Id recordId = createTestRecord();
      // Set up a test request
      RestRequest request = new RestRequest();
      request.requestUri = 'https://na1.salesforce.com/services/apexrest/Accounts/'+ recordId
+'/contacts' ;
      request.httpMethod = 'GET';
      RestContext.request = request;
```

```
        // Call the method to test
        Account thisAccount = AccountManager.getAccount();
        // Verify results
        System.assert(thisAccount != null);
        System.assertEquals('Test record', thisAccount.Name);

    }

    // Helper method
        static Id createTestRecord() {
        // Create test record
        Account TestAcc = new Account(
          Name='Test record');
        insert TestAcc;
        Contact TestCon= new Contact(
        LastName='Test',
        AccountId = TestAcc.id);
        return TestAcc.Id;
    }
}
```

Apex Specialist
challenge 2

```
public with sharing class MaintenanceRequestHelper {

    public static void updateworkOrders(List<Case> updWorkOrders, Map<Id,Case> nonUpdCaseMap)
{

        Set<Id> validIds = new Set<Id>();


        For (Case c : updWorkOrders){

            if (nonUpdCaseMap.get(c.Id).Status != 'Closed' && c.Status == 'Closed'){

                if (c.Type == 'Repair' || c.Type == 'Routine Maintenance'){

                    validIds.add(c.Id);
```

```
        }
    }
}

if (!validIds.isEmpty()){
    List<Case> newCases = new List<Case>();
    Map<Id,Case> closedCasesM = new Map<Id,Case>([SELECT Id, Vehicle__c, Equipment__c,
Equipment__r.Maintenance_Cycle__c,(SELECT Id,Equipment__c,Quantity__c FROM
Equipment_Maintenance_Items__r)
                                    FROM Case WHERE Id IN :validIds]);
    Map<Id,Decimal> maintenanceCycles = new Map<ID,Decimal>();
    AggregateResult[] results = [SELECT Maintenance_Request__c,
MIN(Equipment__r.Maintenance_Cycle__c)cycle FROM Equipment_Maintenance_Item__c WHERE
Maintenance_Request__c IN :ValidIds GROUP BY Maintenance_Request__c];

for (AggregateResult ar : results){
    maintenanceCycles.put((Id) ar.get('Maintenance_Request__c'), (Decimal) ar.get('cycle'));
}

    for(Case cc : closedCasesM.values()){
        Case nc = new Case (
            ParentId = cc.Id,
```

```
            Status = 'New',
                Subject = 'Routine Maintenance',
                Type = 'Routine Maintenance',
                Vehicle__c = cc.Vehicle__c,
                Equipment__c =cc.Equipment__c,
                Origin = 'Web',
                Date_Reported__c = Date.Today()

            );

            If (maintenanceCycles.containskey(cc.Id)){
                nc.Date_Due__c = Date.today().addDays((Integer) maintenanceCycles.get(cc.Id));
            } else {
                nc.Date_Due__c = Date.today().addDays((Integer)
cc.Equipment__r.maintenance_Cycle__c);
            }

            newCases.add(nc);
        }

        insert newCases;
```

```
        List<Equipment_Maintenance_Item__c> clonedWPs = new
List<Equipment_Maintenance_Item__c>();
for (Case nc : newCases){

            for (Equipment_Maintenance_Item__c wp :
closedCasesM.get(nc.ParentId).Equipment_Maintenance_Items__r){

                Equipment_Maintenance_Item__c wpClone = wp.clone();

                wpClone.Maintenance_Request__c = nc.Id;

                ClonedWPs.add(wpClone);



          }

        }

        insert ClonedWPs;

     }

  }

}



 trigger MaintenanceRequest on Case (before update, after update) {


   if(Trigger.isUpdate && Trigger.isAfter){


      MaintenanceRequestHelper.updateWorkOrders(Trigger.New, Trigger.OldMap);
```

```
    }
}
```

challenge 3

```
public with sharing class WarehouseCalloutService implements Queueable {

    private static final String WAREHOUSE_URL = 'https://th-superbadge-apex.herokuapp.com/equipment';

    //class that makes a REST callout to an external warehouse system to get a list of equipment that needs to be updated.

    //The callout's JSON response returns the equipment records that you upsert in Salesforce.

    @future(callout=true)

    public static void runWarehouseEquipmentSync(){

        Http http = new Http();

        HttpRequest request = new HttpRequest();

        request.setEndpoint(WAREHOUSE_URL);

        request.setMethod('GET');

        HttpResponse response = http.send(request);

        List<Product2> warehouseEq = new List<Product2>();

        if (response.getStatusCode() == 200){
```

```
        List<Object> jsonResponse = (List<Object>)JSON.deserializeUntyped(response.getBody());

        System.debug(response.getBody());


        //class maps the following fields: replacement part (always true), cost, current inventory, lifespan, maintenance cycle, and warehouse SKU

        //warehouse SKU will be external ID for identifying which equipment records to update within Salesforce

        for (Object eq : jsonResponse){

            Map<String,Object> mapJson = (Map<String,Object>)eq;

            Product2 myEq = new Product2();

            myEq.Replacement_Part__c = (Boolean) mapJson.get('replacement');

            myEq.Name = (String) mapJson.get('name');

            myEq.Maintenance_Cycle__c = (Integer) mapJson.get('maintenanceperiod');

            myEq.Lifespan_Months__c = (Integer) mapJson.get('lifespan');

            myEq.Cost__c = (Integer) mapJson.get('cost');

            myEq.Warehouse_SKU__c = (String) mapJson.get('sku');

            myEq.Current_Inventory__c = (Double) mapJson.get('quantity');

            myEq.ProductCode = (String) mapJson.get('_id');

            warehouseEq.add(myEq);

        }


        if (warehouseEq.size() > 0){

            upsert warehouseEq;
```

```
            System.debug('Your equipment was synced with the warehouse one');
        }
    }
  }

  public static void execute (QueueableContext context){
    runWarehouseEquipmentSync();
  }

}
```

challenge 4

```
global with sharing class WarehouseSyncSchedule implements Schedulable{
  global void execute(SchedulableContext ctx){
    System.enqueueJob(new WarehouseCalloutService());
  }
}
```

challenge 5

```
@istest
public with sharing class MaintenanceRequestHelperTest {

  private static final string STATUS_NEW = 'New';
```

```
    private static final string WORKING = 'Working';
    private static final string CLOSED = 'Closed';
    private static final string REPAIR = 'Repair';
    private static final string REQUEST_ORIGIN = 'Web';
    private static final string REQUEST_TYPE = 'Routine Maintenance';
    private static final string REQUEST_SUBJECT = 'Testing subject';

    PRIVATE STATIC Vehicle__c createVehicle(){
        Vehicle__c Vehicle = new Vehicle__C(name = 'SuperTruck');
        return Vehicle;
    }

    PRIVATE STATIC Product2 createEq(){
        product2 equipment = new product2(name = 'SuperEquipment',
                                lifespan_months__C = 10,
                                maintenance_cycle__C = 10,
                                replacement_part__c = true);
        return equipment;
    }

    PRIVATE STATIC Case createMaintenanceRequest(id vehicleId, id equipmentId){
```

```
    case cs = new case(Type=REPAIR,
                       Status=STATUS_NEW,
                       Origin=REQUEST_ORIGIN,
                       Subject=REQUEST_SUBJECT,
                       Equipment__c=equipmentId,
                       Vehicle__c=vehicleId);
    return cs;
  }

  PRIVATE STATIC Equipment_Maintenance_Item__c createWorkPart(id equipmentId,id requestId){
    Equipment_Maintenance_Item__c wp = new Equipment_Maintenance_Item__c(Equipment__c =
equipmentId,
                                                        Maintenance_Request__c = requestId);
    return wp;
  }


  @istest
  private static void testMaintenanceRequestPositive(){
    Vehicle__c vehicle = createVehicle();
    insert vehicle;
    id vehicleId = vehicle.Id;
```

```
    Product2 equipment = createEq();
    insert equipment;
    id equipmentId = equipment.Id;

    case somethingToUpdate = createMaintenanceRequest(vehicleId,equipmentId);
    insert somethingToUpdate;

    Equipment_Maintenance_Item__c workP =
createWorkPart(equipmentId,somethingToUpdate.id);
    insert workP;

    test.startTest();
    somethingToUpdate.status = CLOSED;
    update somethingToUpdate;
    test.stopTest();

    Case newReq = [Select id, subject, type, Equipment__c, Date_Reported__c, Vehicle__c,
Date_Due__c
            from case
            where status =:STATUS_NEW];

    Equipment_Maintenance_Item__c workPart = [select id
```

```
                                from Equipment_Maintenance_Item__c
                                where Maintenance_Request__c =:newReq.Id];

        system.assert(workPart != null);
        system.assert(newReq.Subject != null);
        system.assertEquals(newReq.Type, REQUEST_TYPE);
        SYSTEM.assertEquals(newReq.Equipment__c, equipmentId);
        SYSTEM.assertEquals(newReq.Vehicle__c, vehicleId);
        SYSTEM.assertEquals(newReq.Date_Reported__c, system.today());
    }

    @istest
    private static void testMaintenanceRequestNegative(){
        Vehicle__C vehicle = createVehicle();
        insert vehicle;
        id vehicleId = vehicle.Id;

        product2 equipment = createEq();
        insert equipment;
        id equipmentId = equipment.Id;
```

```
        case emptyReq = createMaintenanceRequest(vehicleId,equipmentId);
        insert emptyReq;

        Equipment_Maintenance_Item__c workP = createWorkPart(equipmentId, emptyReq.Id);
        insert workP;

        test.startTest();
        emptyReq.Status = WORKING;
        update emptyReq;
        test.stopTest();

        list<case> allRequest = [select id
                                 from case];

        Equipment_Maintenance_Item__c workPart = [select id
                                                  from Equipment_Maintenance_Item__c
                                                  where Maintenance_Request__c = :emptyReq.Id];

        system.assert(workPart != null);
        system.assert(allRequest.size() == 1);
    }
```

```
  @istest
  private static void testMaintenanceRequestBulk(){
      list<Vehicle__C> vehicleList = new list<Vehicle__C>();
      list<Product2> equipmentList = new list<Product2>();
      list<Equipment_Maintenance_Item__c> workPartList = new
list<Equipment_Maintenance_Item__c>();
      list<case> requestList = new list<case>();
      list<id> oldRequestIds = new list<id>();

      for(integer i = 0; i < 300; i++){
        vehicleList.add(createVehicle());
         equipmentList.add(createEq());
      }
      insert vehicleList;
      insert equipmentList;

      for(integer i = 0; i < 300; i++){
         requestList.add(createMaintenanceRequest(vehicleList.get(i).id, equipmentList.get(i).id));
      }
      insert requestList;

      for(integer i = 0; i < 300; i++){
```

```
        workPartList.add(createWorkPart(equipmentList.get(i).id, requestList.get(i).id));
    }
    insert workPartList;

    test.startTest();
    for(case req : requestList){
        req.Status = CLOSED;
        oldRequestIds.add(req.Id);
    }
    update requestList;
    test.stopTest();

    list<case> allRequests = [select id
                              from case
                              where status =: STATUS_NEW];

    list<Equipment_Maintenance_Item__c> workParts = [select id
                                                     from Equipment_Maintenance_Item__c
                                                     where Maintenance_Request__c in: oldRequestIds];

    system.assert(allRequests.size() == 300);
```

```
  }
}
```

```
public with sharing class MaintenanceRequestHelper {
  public static void updateworkOrders(List<Case> updWorkOrders, Map<Id,Case> nonUpdCaseMap)
{
    Set<Id> validIds = new Set<Id>();

    For (Case c : updWorkOrders){
      if (nonUpdCaseMap.get(c.Id).Status != 'Closed' && c.Status == 'Closed'){
        if (c.Type == 'Repair' || c.Type == 'Routine Maintenance'){
          validIds.add(c.Id);

        }
      }
    }

    if (!validIds.isEmpty()){
      List<Case> newCases = new List<Case>();
```

```
        Map<Id,Case> closedCasesM = new Map<Id,Case>([SELECT Id, Vehicle__c, Equipment__c,
Equipment__r.Maintenance_Cycle__c,(SELECT Id,Equipment__c,Quantity__c FROM
Equipment_Maintenance_Items__r)

                                        FROM Case WHERE Id IN :validIds]);

        Map<Id,Decimal> maintenanceCycles = new Map<ID,Decimal>();

        AggregateResult[] results = [SELECT Maintenance_Request__c,
MIN(Equipment__r.Maintenance_Cycle__c)cycle FROM Equipment_Maintenance_Item__c WHERE
Maintenance_Request__c IN :ValidIds GROUP BY Maintenance_Request__c];


      for (AggregateResult ar : results){

        maintenanceCycles.put((Id) ar.get('Maintenance_Request__c'), (Decimal) ar.get('cycle'));

      }


        for(Case cc : closedCasesM.values()){

          Case nc = new Case (

            ParentId = cc.Id,

          Status = 'New',

            Subject = 'Routine Maintenance',

            Type = 'Routine Maintenance',

            Vehicle__c = cc.Vehicle__c,

            Equipment__c =cc.Equipment__c,

            Origin = 'Web',

            Date_Reported__c = Date.Today()
```

```
        );

        If (maintenanceCycles.containskey(cc.Id)){
            nc.Date_Due__c = Date.today().addDays((Integer) maintenanceCycles.get(cc.Id));
        }

        newCases.add(nc);
    }

    insert newCases;

    List<Equipment_Maintenance_Item__c> clonedWPs = new
List<Equipment_Maintenance_Item__c>();
    for (Case nc : newCases){
        for (Equipment_Maintenance_Item__c wp :
closedCasesM.get(nc.ParentId).Equipment_Maintenance_Items__r){
            Equipment_Maintenance_Item__c wpClone = wp.clone();
            wpClone.Maintenance_Request__c = nc.Id;
            ClonedWPs.add(wpClone);

        }
    }
```

```
        insert ClonedWPs;
    }
  }
}
trigger MaintenanceRequest on Case (before update, after update) {
  if(Trigger.isUpdate && Trigger.isAfter){
    MaintenanceRequestHelper.updateWorkOrders(Trigger.New, Trigger.OldMap);
  }
}
```

challenge 6

```
public with sharing class WarehouseCalloutService {

  private static final String WAREHOUSE_URL = 'https://th-superbadge-apex.herokuapp.com/equipment';

  //@future(callout=true)
  public static void runWarehouseEquipmentSync(){
    Http http = new Http();
    HttpRequest request = new HttpRequest();

    request.setEndpoint(WAREHOUSE_URL);
```

```
        request.setMethod('GET');
        HttpResponse response = http.send(request);


        List<Product2> warehouseEq = new List<Product2>();

        if (response.getStatusCode() == 200){
            List<Object> jsonResponse = (List<Object>)JSON.deserializeUntyped(response.getBody());
            System.debug(response.getBody());

            for (Object eq : jsonResponse){
                Map<String,Object> mapJson = (Map<String,Object>)eq;
                Product2 myEq = new Product2();
                myEq.Replacement_Part__c = (Boolean) mapJson.get('replacement');
                myEq.Name = (String) mapJson.get('name');
                myEq.Maintenance_Cycle__c = (Integer) mapJson.get('maintenanceperiod');
                myEq.Lifespan_Months__c = (Integer) mapJson.get('lifespan');
                myEq.Cost__c = (Decimal) mapJson.get('lifespan');
                myEq.Warehouse_SKU__c = (String) mapJson.get('sku');
                myEq.Current_Inventory__c = (Double) mapJson.get('quantity');
                warehouseEq.add(myEq);
            }
```

```
        if (warehouseEq.size() > 0){
            upsert warehouseEq;
            System.debug('Your equipment was synced with the warehouse one');
            System.debug(warehouseEq);
        }

    }
  }
}


@isTest

private class WarehouseCalloutServiceTest {
  @isTest
  static void testWareHouseCallout(){
      Test.startTest();
      // implement mock callout test here
      Test.setMock(HTTPCalloutMock.class, new WarehouseCalloutServiceMock());
      WarehouseCalloutService.runWarehouseEquipmentSync();
      Test.stopTest();
```

```
        System.assertEquals(1, [SELECT count() FROM Product2]);
    }
}


@isTest
global class WarehouseCalloutServiceMock implements HttpCalloutMock {
    // implement http mock callout
    global static HttpResponse respond(HttpRequest request){

        System.assertEquals('https://th-superbadge-apex.herokuapp.com/equipment',
request.getEndpoint());
        System.assertEquals('GET', request.getMethod());

        // Create a fake response
        HttpResponse response = new HttpResponse();
        response.setHeader('Content-Type', 'application/json');

response.setBody('[{"_id":"55d66226726b611100aaf741","replacement":false,"quantity":5,"name":"Gen
erator 1000 kW","maintenanceperiod":365,"lifespan":120,"cost":5000,"sku":"100003"}]');
        response.setStatusCode(200);
        return response;
    }
}
```

challenge 7

```
global with sharing class WarehouseSyncSchedule implements Schedulable{

    global void execute(SchedulableContext ctx){

        System.enqueueJob(new WarehouseCalloutService());

    }

}


@isTest
public class WarehouseSyncScheduleTest {

    @isTest static void WarehousescheduleTest(){
        String scheduleTime = '00 00 01 * * ?';
        Test.startTest();
        Test.setMock(HttpCalloutMock.class, new WarehouseCalloutServiceMock());
        String jobID=System.schedule('Warehouse Time To Schedule to Test', scheduleTime, new
WarehouseSyncSchedule());
        Test.stopTest();
        //Contains schedule information for a scheduled job. CronTrigger is similar to a cron job on
UNIX systems.
        // This object is available in API version 17.0 and later.
        CronTrigger a=[SELECT Id FROM CronTrigger where NextFireTime > today];
        System.assertEquals(jobID, a.Id,'Schedule ');


    }
}
```